

Remarks

The above-identified application has been carefully reviewed in light of the Office Action mailed February 22, 2007. Submitted herewith is a Request for Extension of Time, and required fee, extending the period for responding to the Office Action to and including June 22, 2007.

Claim 214 has been amended to read more clearly and to facilitate obtaining an early allowance. Specifically, claim 214 has been amended to replace the term "and/or" with --or--. Applicant submits that the scope of claim 214 remains unchanged in that the amended claim 214 encompasses either one of the recited elements/limitations, or both.

Claims 212 and 213 have not been specifically rejected. Therefore, applicant submits that claims 212 and 213 are allowable.

Claims 81-85, 89, 91, 92, 94-95, 97, 105, 106, 108, 182, 183, 185, 188 and 191 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Pat. No. 5,964,748 (hereinafter Peyman '748), in view of U.S. Pat. No. 5,171,318 (hereinafter Gibson) or U.S. Pat. No. 4,676,790 (hereinafter Kern). Claims 96, 100-102, 150, 178, 179, and 184 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, in further view of U.S. Pat. No. 4,959,353 (hereinafter Brown). Claim 98 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, in further view of U.S. Pat. No. 6,880,558 (hereinafter Perez '558). Claims 121-123, 126, 132, 140, 160, 163, 165, 166, 173, and 192 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, in further view of U.S. Pat. 6,335,006 (hereinafter Miller). Claims 112, 113, 124, 125, 134-137, 161, and 162 have been rejected under 35

U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Miller, as applied above, and further in view of U.S. Pub. No. 2003/0220653 (hereinafter Perez '653). Claim 164 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Miller, as applied above, and further in view of Perez '558. Claim 171 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Miller, as applied above, and further in view of U.S. Pub. No. 2004/0015234 (hereinafter Peyman '234). Claim 177 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Miller, as applied above, and further in view of Brown. Claims 180, 192-196, 200-202, 206, and 209 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, in further view of U.S. Pat. No. 5,984,914 (hereinafter Cumming). Claim 211 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Cumming, as applied above, and further in view of U.S. Pat. No. 6,361,560 (hereinafter Nigam). Claim 107 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern as applied to claim 81 above, and further in view of Peyman '234. Claims 197 and 198 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Cumming, as applied to claim 194 above, and further in view of Perez '653. Claims 186 and 190 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, in view of U.S. Pub. No. 2002/0039788 (hereinafter Isseroff). Claims 203 and 208 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Cumming, as applied to claim 194 above, and further in view of Isseroff. Claim 210 has been rejected under 35 U.S.C. §

103(a) as being unpatentable over Peyman '748, Gibson, Kern and Cumming, as applied above to claim 194, and further in view of Brown. Claim 86 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, and further in view of U.S. Pat. No. 4,983,181 (hereinafter Civerchia). Claims 103 and 104 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson and Kern, as applied above, and further in view of U.S. Pat. No. 5,587,175 (hereinafter Viegas). Claims 127-130, 167-170 and 214-221 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Peyman '748, Gibson, Kern and Miller, as applied above, and further in view of Viegas.

Applicant traverses each of these rejections.

The presently claimed invention is directed to methods for vision correction.

In independent claim 81, the method comprises inserting a lens into a pocket created between a corneal epithelium of an eye and the Bowman's membrane of the eye, wherein the lens is secured to the eye with an adhesive.

The method of independent claim 194 comprises cooling a corneal epithelium of an eye; and inserting a lens into a pocket created between the corneal epithelium and Bowman's membrane of the eye, wherein the lens is secured to the eye with an adhesive.

The method of independent claim 214 comprises applying a liquid to a corneal epithelium of an eye, the liquid being effective in loosening the epithelium substantially without killing epithelial cells; treating the epithelium to provide or maintain the epithelium in a moisturized state, wherein the treating step comprises applying a gel to the epithelium; raising a portion of the loosened, moisturized epithelium from Bowman's membrane of the eye; separating the raised portion of

the epithelium from the Bowman's membrane; forming one or more incisions in the raised portion of the epithelium to create a pocket between the corneal epithelium and Bowman's membrane; and inserting a lens into the pocket.

The method of independent claim 218 is similar to that of independent claim 214 except that the treating step is not specifically recited, and the one or more incisions in the raised portion of the epithelium to create a pocket between the corneal epithelium and Bowman's membrane are one or more elongated incisions.

Each of the present claims recites a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye. Applicant has found that a pocket can be created between a corneal epithelium and Bowman's membrane of an eye, and that such a pocket can be effectively used to insert a lens into the pocket in a method of correcting vision.

The use of a pocket created between the corneal epithelium and Bowman's membrane is in contrast to the use of a flap which is moved away to expose an interior eye surface during surgery. Advantageously, using a pocket created between a corneal epithelium and Bowman's membrane of an eye allows the lens to be inserted substantially without exposing the portion of the cornea under or posterior to the corneal epithelium. Thus, using such a pocket avoids exposing a very sensitive part of the eye without the protective covering afforded by the corneal epithelium. In addition, such a pocket created anterior to the stroma of the cornea is less traumatic to the eye, and is less invasive and quicker to heal than is a pocket created in the stroma, that is an intrastromal pocket. Ultimately, a better overall outcome for the patient is likely using a pocket created between the corneal epithelium and Bowman's membrane, as in the

present invention, relative to methods which involve forming a flap or an intrastromal pocket.

Peyman '748 discloses intrastromal corneal modification to correct a patient's vision. Peyman '748, at column 12, lines 26-55 and Figs. 19-27 (specifically cited by the Examiner) discloses creating an intrastromal pocket in a live cornea by moving a spatula back and forth within an intrastromal area of the cornea, so as not to intersect and rupture the Descemet membrane or Bowman's membrane of the cornea. The Descemet membrane is located posterior to the stroma and Bowman's membrane is located anterior to the stroma. Thus, Peyman '748 discloses that the pocket is to be created entirely within the stroma. Peyman '748 discloses that, after the intrastromal pocket is formed, a laser is used to remove three-dimensional portions of the stroma by ablation, after which the ablated stromal cavity collapses to decrease the curvature of the cornea. In this embodiment of Peyman '748, no lens is inserted. In a different embodiment, Peyman '748 discloses that an ocular material, such as transparent fluids or solids, can be inserted into the intrastromal pocket.

Peyman '748 does not disclose, teach or suggest the present invention. For example, Peyman '748 does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. Moreover, Peyman '748 does not even suggest the substantial advantages of using a pocket created between the corneal epithelium and Bowman's membrane of an eye. Applicant submits that Peyman '748 provides no basis whatsoever for a pocket created between the corneal epithelium and Bowman's membrane of an eye.

Peyman '748 discloses that intrastromal pockets are created to allow removal of three-dimensional portions of the stroma by

laser ablation. Thus, Peyman '748 actually teaches away from a pocket created between the corneal epithelium and Bowman's membrane of an eye, as in the present claims.

In addition, Peyman '748 does not disclose, teach or even suggest any of the present methods (1) in which a lens is secured to the eye with an adhesive, as in independent claims 81 and 194; or (2) including cooling a corneal epithelium of an eye, as in independent claim 194; or (3) including applying a liquid to a corneal epithelium of an eye to loosen the epithelium substantially without killing epithelial cells or any of the other steps recited in independent claims 214 and 218.

The Examiner, with no factual basis, contends that the use of the term "internal pocket" by Peyman '748 suggests a pocket between the corneal epithelium and Bowman's membrane. Applicant vigorously disagrees.

The only time Peyman '748 uses the term "internal pocket" is at column 12, lines 40-44 which is as follows:

As seen in FIGS. 19 and 20, once incision 118 is made, a spatula 120 is inserted into incision 118 to separate an internal area of live cornea 112 into first and second opposed internal surfaces 122 and 124, thereby creating an intrastromal or internal pocket 126.

Thus, in the context of Peyman '748, the term "internal pocket" is a synonym for "intrastromal pocket", and is not in the least even suggestive of a pocket between the corneal epithelium and Bowman's membrane of an eye, as in the present claims.

Next, the Examiner contends that because Peyman '748 discloses creating a pocket without rupturing Bowman's membrane,

Peyman '748 suggests a pocket between the epithelium and Bowman's membrane. Applicant again vigorously disagrees.

Peyman '748, at column 12, lines 49-55 is as follows:

As seen in FIGS. 19 and 20, pocket 126 is created by moving spatula 120 back and forth within an intrastromal area of cornea 112. It is important when creating pocket 126 to keep spatula 120 in substantially a single plane and substantially tangential to the cornea's internal surfaces to prevent intersecting and rupturing the Descemet or Bowman's membrane.

Thus, it is clear that Peyman '748 discloses using a spatula within an intrastromal area of the cornea to create an intrastromal pocket so as to prevent rupturing Bowman's membrane. In this context, in which Peyman '748 discloses only intrastromal pockets and prevents rupture of Bowman's membrane in using a spatula to create such an intrastromal pocket, applicant submits that Peyman '748 actually teaches away from creating a pocket between the corneal epithelium and Bowman's membrane of an eye, as in the present claims

In addition, the Examiner contends that applicant discloses, in the present specification, both pockets between the corneal epithelium and Bowman's membrane, and intrastromal pockets and, therefore, there is nothing critical about the pockets between the corneal epithelium and Bowman's membrane relative to intrastromal pockets.

The present specification includes disclosure directed to various inventive aspects. Both types of pockets are disclosed in the specification because one or more of these inventive aspects may include or be useful with one or both of these types

of pockets. In the presently claimed invention, a pocket created the corneal epithelium and Bowman's membrane is involved.

Moreover, pockets created between the corneal epithelium and Bowman's membrane are different and distinct from intrastromal pockets. As noted above, Peyman '748 actually teaches away from pockets between corneal epithelium and Bowman's membrane. Further, as noted above, in the context of the presently claimed invention, pockets between the corneal epithelium and Bowman's membrane provide substantial advantages relative to intrastromal pockets.

Simply put, the Examiner has no basis in fact and no other proper reasonable basis for contending that Peyman '748 discloses, teaches or even suggests methods involving creating a pocket between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims.

Applicant submits that Peyman '748 does not even suggest, and actually teaches away from, methods involving creating pockets between the corneal epithelium and Bowman's membrane of an eye.

Each of the 18 separate rejections presented by the Examiner is based on Peyman '748 in combination with from 2 to 4 other references. Applicant will show that none of these other prior art references supply the deficiencies apparent in the teachings of Peyman '748.

Initially, the Examiner relies on Gibson or Kern in combination with Peyman '748.

Gibson discloses implanting a contact lens in a cornea by removing a central portion of the epithelium, making an incision through Bowman's membrane into the stromal tissue and forming a continuous pocket in the stroma. Gibson discloses that the edge of the contact lens is placed into the stromal pocket, and that



after lens insertion the surgeon inserts a small amount of tissue adhesive into the pocket.

Gibson does not disclose, teach or suggest the present invention. For example, Gibson, like Peyman '748, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. Gibson discloses removing epithelial tissue and forming a pocket in the stroma of an eye. Thus, Gibson actually teaches away from the present invention and methods involving creating a pocket between the corneal epithelium and Bowman's membrane of an eye. That Gibson discloses using a tissue adhesive in a stromal pocket, in combination with the deficient teachings of Peyman '748, provides no motivation nor any other reasonable proper basis for making obvious the present invention, particularly in view of the substantial deficiencies of Gibson regarding the present claims, for example, as outlined above.

Kern discloses a process for implanting corneal inlays including laser milling to remove the corneal epithelium so that the surface of the implant will lay flush with Bowman's membrane. Kern discloses that collagen glue can be used to bond the implant to the recessed portion of the cornea. Kern discloses that the implant is laser treated to promote/support re-growth of the epithelium.

Kern does not disclose, teach or suggest the present invention. For example, Kern does not even suggest a method involving creating any pocket, let alone methods involving creating a pocket between the corneal epithelium and Bowman's membrane of an eye, as in all the present claims. Kern discloses laser milling the epithelium tissue to recess the corneal surface to allow the inlay to be implanted. This is entirely different and distinct from the presently claimed

methods. To a large extent, Kern actually teaches away from the present claims. The fact that Kern discloses using collagen glue to bond an inlay to a laser milled, recessed corneal surface, in combination with the deficient teachings of Peyman '748, provides no motivation nor any other reasonable proper basis for making obvious the present claims, particularly in view of the substantial deficiencies of Kern regarding the present claims, for example, as outlined above.

In view of the above, applicant submits that all of the present claims, and in particular claims 81-85, 89, 91, 92, 94-95, 97, 105, 106, 108, 182-183, 185, 188 and 191, are unobvious from and patentable over Peyman '748 in view of Gibson or Kern under 35 U.S.C. § 103(a).

Brown discloses promotion of corneal stroma wound healing with human epidermal growth factor prepared from recombinant DNA. Brown discloses utilizing a composition including a purified polypeptide having mitogenic activity capable of promoting the growth of both the epidermal and dermal layers of the skin, as well as the epithelial and stromal layers of the cornea and other organs.

Brown does not disclose, teach or suggest the present invention. For example, Brown, like Peyman '748, Gibson and Kern, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. In fact, Brown does not even suggest creating any corneal pocket.

In view of the above, applicant submits that Brown does not supply the deficiencies apparent in Peyman '748, Gibson and Kern, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson and Kern, provides no

motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 96, 100-102, 150, 178, 179 and 184, are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Brown under 35 U.S.C. § 103(a).

Perez '558 discloses using a suction device to apply a vacuum to a corneal epithelial layer to raise a section of the epithelial layer and form a blister which is typically filled with physiological fluid. Perez '558 discloses that this blister is opened to form an opened epithelial flap and that a lens is placed towards the corneal stromal margin beneath that flap.

Perez '558 does not disclose, teach or suggest the present invention. For example, Perez '558, like Peyman '748, Gibson and Kern, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. The fact that Perez '558 discloses using a vacuum in forming an opened epithelial flap actually teaches away from methods involving a pocket created between a corneal epithelium and Bowman's membrane into which a lens is inserted. As noted above, an opened flap, such as formed by Perez '558 is different and distinct from the pocket created between the corneal epithelium and Bowman's membrane of an eye, as in the present claims.

In view of the above, applicant submits that Perez '558 does not supply the deficiencies apparent in Peyman '748, Gibson and Kern, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson and Kern, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claim 98, are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Perez '558 under 35 U.S.C. § 103(a).

Miller discloses a method of delaminating the epithelial sheet of the cornea by loosening the epithelial sheet with a loosening solution, including an agent such as hyaluronidase ACS, and separating the loosened epithelial sheet from the underlying tissue of the cornea.

Miller does not disclose, teach or suggest the present invention. For example, Miller, like Peyman '748 Gibson and Kern, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. Miller does not even suggest creating any corneal pocket.

In view of the above, applicant submits that Miller does not supply the deficiencies apparent in Peyman '748, Gibson and Kern, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson and Kern, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 121-123, 126, 132, 140, 160, 163, 165, 166, 173 and 192, are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Miller under 35 U.S.C. § 103(a).

Perez '653 discloses preferred chemical compositions for epithelial delamination include vesicants such as 1M hypertonic saline, ethanol, cantharidin, and CEES.

As stated in the AMENDMENT IN RESPONSE TO FEBRUARY 3, 2006 OFFICE ACTION, on pages 16 of 21 and 17 of 21, the disclosure of Perez '653 regarding creating corneal epithelial pockets and use

of non-donor corneal tissue lenses was added only after the effective filing date of the presently claimed subject matter. Therefore, Perez '653, with regard to such subject matter, is not prior art to the presently claimed invention.

As noted above, none of Peyman '748, Gibson, Kern and Miller disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims.

The fact that Perez '653 discloses preferred compositions include vesicants such as 1 M hypertonic saline, ethanol, cantharidin, and CEES does not supply the deficiencies apparent in Peyman '748, Gibson, Kern and Miller. In addition, Perez '653, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Miller, provide no motivation nor any other reasonable basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 112, 113, 124, 125, 134-137, 161 and 162 are unobvious from and patentable over Peyman '748, Gibson, Kern and Miller in further view of Perez '653 under 35 U.S.C. § 103(a).

The disclosure and deficiencies of Perez '558 have been discussed previously and are submitted here.

Peyman '234 discloses using a microkeratome to form a flap in the surface of a cornea as part of a method to modify refractivity of a cornea of an eye with multiple inlays.

Peyman '234 does not disclose, teach or suggest the present invention. For example, Peyman '234, like Peyman '748, Gibson, Kern and Miller, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims.

The disclosure and deficiencies of Brown have been discussed previously and are resubmitted here.

In view of the above, applicant submits that none of Perez '558, Peyman '234 and Brown, taken alone or in any combination, supply the deficiencies apparent in Peyman '748, Gibson, Kern and Miller. None of these references, taken singly or in any combination, even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. In addition, none of Perez '558, Peyman '234 and Brown, taken alone or in any combination, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Miller, provide any motivation or any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 164, 171 and 177, are unobvious from and patentable over Peyman '748, Gibson, Kern and Miller in further view of one or more of Perez '558, Peyman '234 and Brown under 35 U.S.C. § 103(a).

For substantially similar reasons, applicant submits that the present claims, and in particular claim 107, are unobvious from and patentable over Peyman '748, Gibson and Kern and further in view of Peyman '234 under 35 U.S.C. § 103(a).

Cumming discloses forming a pocket in a cornea of an eye so that at least one-half of the circumference remains intact throughout the corneal layers, thus leaving the cornea well supported, anteriorly by, Bowman's membrane and posteriorly by Descemet's membrane (column 2, lines 61-65). Thus, Cumming discloses that the pocket is formed in the stroma between the supporting structures of Bowman's membrane and Descemet's membrane. Cumming discloses that a tube or passage may be utilized to provide for air or gas passage therethrough from a

pressurized source for the cooling of a spatula and areas being ablated, and for the removal and venting of debris or break down products of ablation.

Cumming does not disclose, teach or suggest the present invention. For example, Cumming, like Peyman '748, Gibson and Kern and Cumming '914 does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. Cumming teaches forming a pocket in the stroma and, at least to this extent, is merely cumulative of the deficient teachings of Peyman '748. In addition, Cumming does not disclose, teach or suggest cooling the corneal epithelium, as recited in certain of the present claims.

In short, Cumming fails to supply the deficiencies apparent in the teachings of Peyman '748, Gibson and Kern, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson and Kern, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 180, 192-196, 200-202, 206 and 209, are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Cumming under 35 U.S.C. § 103(a).

Nigam discloses that implants, such as solid and split-ring shaped, circular flexible body members and other types of adjustable ring-shaped devices, can be implanted within the body of the cornea for changing the shape of the cornea, thereby altering the refractive power of the cornea. Nigam discloses that such prostheses typically are implanted by first making a tunnel and/or pocket within the cornea which leaves Bowman's membrane intact and does not relieve the inherent natural tension of the membrane. Nigam discloses placing a

biocompatible, permeable, micro-porous hydrogel having a refractive index similar to the cornea by first creating a corneal flap, for example, using a microkeratome, to relieve tension of Bowman's membrane.

Nigam does not disclose, teach or suggest the present invention. For example, Nigam, like Peyman '748, Gibson, Kern and Cumming, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims. Nigam does not disclose using a microkeratome to make any corneal pocket, let alone a pocket between a corneal epithelium and Bowman's membrane of an eye. Nigam discloses using a microkeratome to make a corneal flap. As noted above, such flaps are different and distinct from a pocket between the corneal epithelium and Bowman's membrane of an eye, as in the present claims.

In view of the above, applicant submits that Nigam does not supply the deficiencies apparent in Peyman '748, Gibson, Kern and Cumming, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Cumming, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claim 211, are unobvious from and patentable over Peyman '748, Gibson, Kern and Cumming in further view of Nigam under 35 U.S.C. § 103(a).

The disclosure and deficiencies of Perez '653 have been discussed previously and are resubmitted here.

The Examiner takes the position that claims 197 and 198 are obvious contending that it would have been obvious to utilize a hypertonic solution for the loosening procedure of Peyman '748 for the same reasons that Perez '653 utilizes the same and in



order to prevent the use of toxic residues to the eye tissue that cause toxicity problems after surgery. Applicant vigorously disagrees.

Peyman '748 does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all of the present claims. As noted previously, the disclosure of Perez '653 regarding creating corneal epithelial pockets is not prior art with regard to the presently claimed invention. Further, as noted above, none of Gibson, Kern and Cumming disclose, teach or even suggest any method which involves such a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye.

Thus, Perez '653 does not supply the deficiencies apparent in the teachings of Peyman '748, Gibson, Kern and Cumming and, in addition, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Cumming, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

In view of the above, applicant submits that the present claims, and in particular claims 197 and 198, are unobvious from and patentable over Peyman '748, Gibson, Kern and Cumming in view of Perez '653 under 35 U.S.C. § 103(a).

Isseroff discloses a bioengineered composite graft for the treatment of a damaged or diseased corneal epithelial surface. Isseroff discloses that the composite graft includes an extracellular carrier material including collagen.

Isseroff does not disclose, teach or suggest the present invention. For example, Isseroff, like Peyman '748, Gibson, Kern and Cumming, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all

the present claims. Isseroff discloses treating damaged or diseased corneal epithelial surfaces, rather than placing a lens in a pocket created between a corneal epithelium and Bowman's membrane of an eye.

In view of the above, applicant submits that Isseroff does not supply the deficiencies apparent in Peyman '748, Gibson, Kern and Cumming and, in addition, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Cumming, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 186 and 190, are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Isseroff under 35 U.S.C. § 103(a). Further, applicant submits that the present claims, and in particular claims 203 and 208 are unobvious from and patentable over Peyman '748, Gibson, Kern and Cumming in further view of Isseroff under 35 U.S.C § 103(a).

As noted previously, none of Peyman '748, Gibson, Kern, Cumming and Brown disclose, teach or suggest the present invention. For example, none of these references even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all the present claims.

In view of the above, applicant submits that Brown does not supply the deficiencies apparent in Peyman '748, Gibson, Kern and Cumming, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Cumming, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular, claim 210, are unobvious from and patentable over

Peyman '748, Gibson, Kern and Cumming in further view of Brown under 35 U.S.C. § 103(a).

Civerchia discloses a surgical method for placing an artificial lens in an eye which includes a first step of removing a portion of corneal epithelium from Bowman's membrane on an area slightly larger than the shape of the lens, for example, a collagen-hydrogel lens. Civerchia discloses that during the healing process the corneal epithelium grows over the lens. Civerchia discloses that the artificial lens can be removed and replaced by stripping the lens from Bowman's membrane and allowing corneal epithelium to grow over the defect, or a new collagen-hydrogel can be placed which will support re-growth of corneal epithelium.

Civerchia does not disclose, teach or suggest the present invention, for example, Civerchia, like Peyman '748, Gibson and Kern, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as recited in all the present claims. The fact that Civerchia discloses stripping the corneal epithelium from Bowman's membrane and re-growing the epithelium, actually teaches away from creating a pocket between the corneal epithelium and Bowman's membrane.

In view of the above, applicant submits that Civerchia does not supply the deficiencies apparent in Peyman '748, Gibson and Kern, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson and Kern, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claim 86, are unobvious from and patentable over Peyman '748, Gibson and Kern and in further view of Civerchia under 35 U.S.C. § 103(a).

Viegas discloses gels as protective corneal shields; or as ablatable corneal masks useful in laser reprofiling of the cornea. Viegas discloses that such gels include film-forming polymers, such as hydroxalkyl cellulose, methyl cellulose, sodium hyaluronate and polyvinyl alcohol, which have been found useful in ophthalmic applications.

Viegas does not disclose, teach or even suggest the present invention. For example, Viegas, like Peyman '748, Gibson, Kern and Miller, does not disclose, teach or even suggest any method which involves a pocket created between a corneal epithelium of an eye and Bowman's membrane of the eye, as in all of the present claims. In fact, Viegas does not even suggest creating any corneal pocket.

In view of the above, applicant submits that Viegas does not supply the deficiencies apparent in Peyman, '748, Gibson, Kern and Miller, and, in addition, in combination with the deficient teachings of Peyman '748, Gibson, Kern and Miller, provides no motivation nor any other reasonable proper basis for making obvious the present methods, as recited in the present claims.

Therefore, applicant submits that the present claims, and in particular claims 103 and 104 are unobvious from and patentable over Peyman '748, Gibson and Kern in further view of Viegas under 35 U.S.C. § 103(a). In addition, applicant submits that the present claims, and in particular claims 127-130, 167-170 and 214-221 are unobvious from and patentable over Peyman '748, Gibson, Kern and Miller in further view of Viegas under 35 U.S.C. § 103(a).


Each of the present dependent claims is separately patentable over the prior art. For example, none of the prior art, taken singly or in any combination, disclose, teach or even suggest the present methods including the additional feature or

features recited in any of the present dependent claims. Therefore, applicant submits that each of the present claims is separately patentable over the prior art.

In conclusion, applicant submits that the present claims 212 and 213 have not been rejected, or to be unobvious from and patentable over the prior art under 35 U.S.C. § 103. Therefore, applicant submits that claims 81-86, 89, 91-98, 100-108, 112, 113, 121-130, 132, 134-137, 140, 150, 160-171, 173, 177-180, 182-186, 188, 190-198, 200-203, 206 and 208-221 are allowable. Thus, applicant respectfully requests the Examiner to pass the above-identified application to issuance at an early date. Should any matters remain unresolved, the Examiner is requested to call applicant's attorney at the telephone number given below.

Respectfully submitted,

Date: 6/22/07

  
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